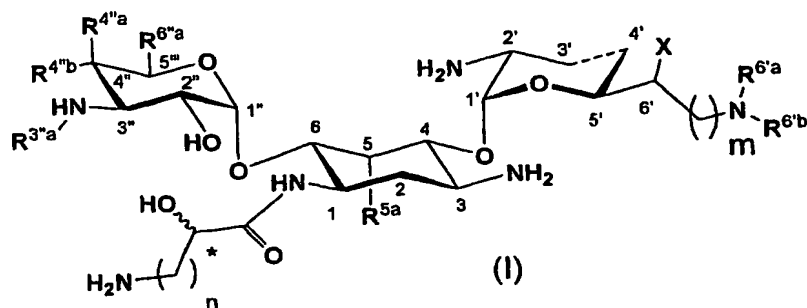


CLAIMS

- [1] A compound represented by general formula (I) or a pharmacologically acceptable salt or solvate thereof:
[Chemical formula 1]



wherein

$R^{4'a}$ and $R^{4'b}$, which may be the same or different, represent a hydrogen atom or hydroxyl,

R^{5a} represents a halogen atom,

hydroxyl,

amino,

azide,

C_{1-6} alkanoyloxy,

C_{1-6} alkylsulfonyloxy,

C_{1-6} alkanoylamino,

arylcarbonylamino,

di- C_{1-6} alkylamino, or,

C_{1-6} alkylamino wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, phenyl, vinyl, amino, or hydroxymethyl,

$R^{6'a}$ represents C_{1-6} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, a halogen atom, or amino,

$R^{6'a}$ and $R^{6'b}$, which may be the same or different, represent a hydrogen atom or C_{1-6} alkyl,

$R^{3'a}$ represents a hydrogen atom or C_{1-6} alkyl,

the dashed line represents a single bond or a double bond,

m represents an integer of 0 to 2,

X represents a hydrogen atom or hydroxyl,

n represents an integer of 1 to 3, and

* represents an R or S configuration, provided that

R^{5a} represents a group as defined above other than a fluorine atom when R^{4'a} represents a hydrogen atom, R^{4'b} represents hydroxyl, and the dashed line represents a single bond; and R^{5a} represents a group as defined above other than hydroxyl, amino, and azide when R^{3'a} represents a hydrogen atom, R^{4'a} represents a hydrogen atom, R^{4'b} represents hydroxyl, R^{6'a} represents hydroxymethyl, both R^{6'a} and R^{6'b} represent a hydrogen atom, X represents a hydrogen atom, and the dashed line represents a single bond.

- [2] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof, wherein

R^{5a} represents C₁₋₃ alkanoyloxy, C₁₋₃ alkylsulfonyloxy, C₁₋₃ alkanoylamino, phenylcarbonylamino, naphthylcarbonylamino, di-C₁₋₃ alkylamino, or C₁₋₃ alkylamino wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, phenyl, vinyl, amino, or hydroxymethyl.

- [3] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof, wherein

R^{6'a} represents C₁₋₃ alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, a halogen atom, or amino.

- [4] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof, wherein R^{6'a} and R^{6'b}, which may be the same or different, represent a hydrogen atom or C₁₋₃ alkyl.

- [5] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof, wherein R^{3'a} represents C₁₋₃ alkyl.

- [6] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof, wherein

R^{5a} represents a halogen atom, hydroxyl, amino, azide, C₁₋₃

alkanoyloxy, C₁₋₃ alkylsulfonyloxy, C₁₋₃ alkanoylamino, phenylcarbonylamino, naphthylcarbonylamino, di-C₁₋₃ alkylamino, or, C₁₋₃ alkylamino wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, phenyl, vinyl, amino, or hydroxymethyl,

R^{6'a} represents C₁₋₃ alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, a halogen atom, or amino,

R^{6'a} and R^{6'b}, which may be the same or different, represent a hydrogen atom or C₁₋₃ alkyl, and

R^{3'a} represents a hydrogen atom or C₁₋₃ alkyl.

- [7] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof, wherein

R^{4'a} represents a hydrogen atom or hydroxyl,

R^{4'b} represents a hydrogen atom,

R^{6'a} represents hydroxymethyl,

any one of R^{6'a} and R^{6'b} represents a hydrogen atom,

the dashed line represents a single bond,

m represents 0,

X represents a hydrogen atom, and

n represents an integer of 1 to 3.

- [8] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof, wherein

R^{5a} represents a chlorine atom, hydroxyl, amino, azide, C₁₋₆ alkanoyloxy, C₁₋₆ alkylsulfonyloxy, C₁₋₆ alkanoylamino, arylcarbonylamino, di-C₁₋₆ alkylamino, or C₁₋₆ alkylamino wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, phenyl, vinyl, amino, or hydroxymethyl,

R^{6'a} represents hydroxymethyl,

any one of R^{6'a} and R^{6'b} represents a hydrogen atom,

the dashed line represents a single bond,

m represents 0,

X represents a hydrogen atom, and

n represents 2.

- [9] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof, wherein $R^{6'a}$ represents hydroxymethyl or fluoromethyl,

both $R^{6'a}$ and $R^{6'b}$ represent a hydrogen atom,

$R^{3'a}$ represents a hydrogen atom,

the dashed line represents a double bond,

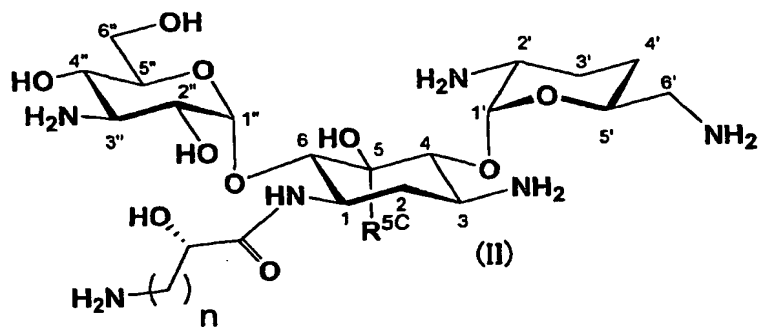
m is 0 (zero),

X represents a hydrogen atom, and

n is 1 or 2.

- [10] A compound represented by general formula (II) or a pharmacologically acceptable salt or solvate thereof:

[Chemical formula 2]



wherein

R^{5C} represents C_{1-6} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by C_{1-6} alkoxy,

C_{2-6} alkenyl, or,

amino C_{1-6} alkyl wherein one or more hydrogen atoms in the amino group are optionally substituted by C_{1-6} alkyl where one or more hydrogen atoms in the alkyl group are optionally substituted by amino, hydroxyl, or heteroaryl, and

n is an integer of 1 to 3.

- [11] The compound according to claim 10 or a pharmacologically acceptable salt or solvate thereof,

wherein

R^{5C} represents C_{1-3} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by C_{1-6} alkoxy; C_{2-4} alkenyl; or amino C_{1-3} alkyl wherein one or more hydrogen atoms in the amino group are optionally substituted by C_{1-6} alkyl

where one or more hydrogen atoms in the alkyl group are optionally substituted by amino, hydroxyl, or heteroaryl.

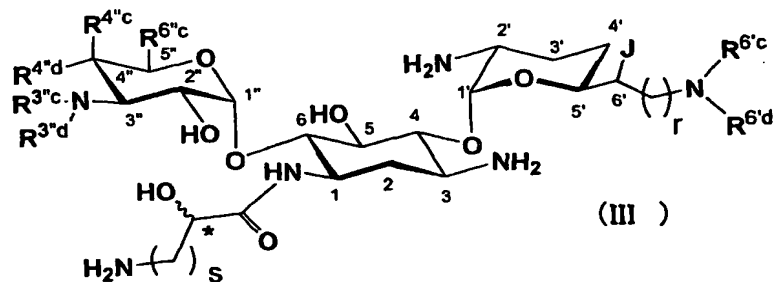
- [12] The compound according to claim 10 or a pharmacologically acceptable salt or solvate thereof, wherein

R^{5c} represents C_{1-6} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by C_{1-3} alkoxy; C_{2-6} alkenyl; or amino C_{1-6} alkyl wherein one or more hydrogen atoms in the amino group are optionally substituted by C_{1-3} alkyl where one or more hydrogen atoms in the alkyl group are optionally substituted by amino, hydroxyl, pyrrolyl, or pyridyl.

- [13] The compound according to claim 10 or a pharmacologically acceptable salt or solvate thereof, wherein

R^{5c} represents C_{1-3} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by C_{1-3} alkoxy; C_{2-4} alkenyl; or amino C_{1-3} alkyl wherein one or more hydrogen atoms in the amino group are optionally substituted by C_{1-3} alkyl where one or more hydrogen atoms in the alkyl group are optionally substituted by amino, hydroxyl, pyrrolyl, or pyridyl.

- [14] A compound represented by general formula (III) or a pharmacologically acceptable salt or solvate thereof:
[Chemical formula 3]



wherein

R^{4c} represents a hydrogen atom or hydroxyl,

R^{4d} represents a hydrogen atom or hydroxyl wherein, when

R^{4c} represents hydroxyl, R^{4d} represents a hydrogen atom,

R^{6c} represents C_{1-6} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl,

amino, or azide; or a group of the formula:

[Chemical formula 4]



wherein $R^{6''d}$ and $R^{6''e}$, which may be the same or different, represent a hydrogen atom or amino C_{1-6} alkyl, or $R^{6''d}$ and $R^{6''e}$ together may represent a six-membered cyclic group containing 1 to 4 heteroatoms, Y represents a hydrogen atom or hydroxyl, and p represents an integer of 0 or 1,

$R^{3''c}$ and $R^{3''d}$, which may be the same or different, represent a hydrogen atom,

C_{1-10} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl or aryl optionally substituted by hydroxyl or amino,

formimidoyl, or

amidino,

$R^{6'c}$ and $R^{6'd}$, which may be the same or different, represent a hydrogen atom,

amino C_{1-6} alkyl,

formimidoyl,

amidino, or

benzyl optionally substituted by hydroxyl,

r represents an integer of 0 to 2,

J represents a hydrogen atom or hydroxyl,

s represents an integer of 1 to 3, and

* represents an R or S configuration,

excluding compounds wherein

$R^{4'c}$, $R^{3'c}$, $R^{3'd}$, $R^{6'c}$, and $R^{6'd}$ simultaneously represent a hydrogen atom, $R^{4'd}$ represents hydroxyl, $R^{6'c}$ represents hydroxymethyl, r represents 0, X represents a hydrogen atom, and s represents 2.

[15] The compound according to claim 14 or a pharmacologically acceptable salt or solvate thereof, wherein

$R^{6'c}$ represents C_{1-3} alkyl wherein one or more hydrogen

atoms in the alkyl group are optionally substituted by hydroxyl, amino, or azide; or a group of the formula:

[Chemical formula 5]



wherein $\text{R}^{6'd}$ and $\text{R}^{6'e}$, which may be the same or different, represent a hydrogen atom or amino C_{1-3} alkyl, or $\text{R}^{6'd}$ and $\text{R}^{6'e}$ together represent a six-membered cyclic group containing 1 to 4 heteroatoms, Y represents a hydrogen atom or hydroxyl, and p represents an integer of 0 or 1,

$\text{R}^{3'c}$ and $\text{R}^{3'd}$, which may be the same or different, represent a hydrogen atom,

C_{1-6} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl; phenyl optionally substituted by hydroxyl or amino; or naphthyl optionally substituted by hydroxyl or amino,

formimidoyl, or

amidino,

$\text{R}^{6'c}$ and $\text{R}^{6'd}$, which may be the same or different, represent a hydrogen atom,

amino C_{1-3} alkyl,

formimidoyl,

amidino, or

benzyl optionally substituted by hydroxyl.

- [16] The compound according to claim 14 or a pharmacologically acceptable salt or solvate thereof, wherein

$\text{R}^{4'c}$ represents a hydrogen atom, $\text{R}^{4'd}$ represents hydroxyl, both $\text{R}^{6'c}$ and $\text{R}^{6'd}$ represent a hydrogen atom, both $\text{R}^{3'c}$ and $\text{R}^{3'd}$ represent a hydrogen atom, r represents 0, J represents a hydrogen atom, and s represents 2.

- [17] The compound according to claim 14 or a pharmacologically acceptable salt or solvate thereof, wherein

R^{4c} represents a hydrogen atom, R^{4d} represents hydroxyl, both R^{6c} and R^{6d} represent a hydrogen atom, R^{6c} represents hydroxymethyl, any one of R^{3c} and R^{3d} represents a hydrogen atom, r represents 0, J represents a hydrogen atom, and s represents 2.

- [18] The compound according to claim 14 or a pharmacologically acceptable salt or solvate thereof, wherein

R^{4c} represents a hydrogen atom, R^{4d} represents hydroxyl, R^{6c} represents hydroxymethyl, both R^{3c} and R^{3d} represent a hydrogen atom, and s represents 2.

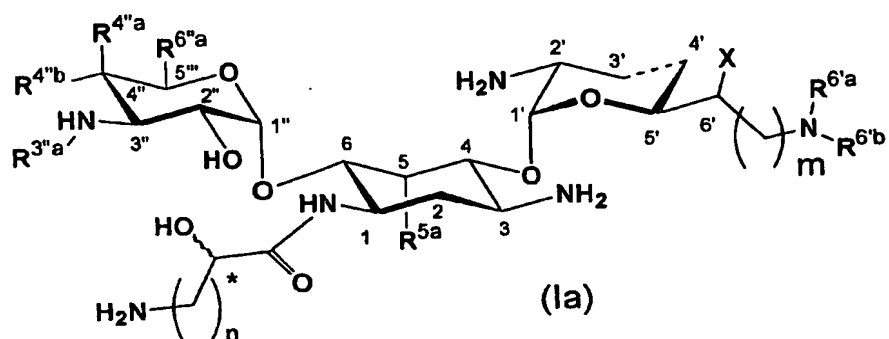
- [19] 5,4"-Diepiarbekacin,
 5-deoxy-4"-epi-5-epifluoroarbekacin,
 5-deoxy-4"-epi-5-epichloroarbekacin,
 5-deoxy-4"-epi-5-epiaminoarbekacin,
 4"-deoxy-5-epiarbekacin,
 1-N-[(S)-(3-amino-2-hydroxypropanoyl)]-5,4"-diepidibekacin,
 5,4"-diepi-3"-N-methylarbekacin,
 5,4"-diepi-6'-N-methylarbekacin,
 5-epiarbekacin,
 5-deoxy-5-epichloroarbekacin,
 5-deoxy-5-epiaminoarbekacin,
 5-deoxy-5-epi(2-aminoethyl)aminoarbekacin,
 5-epi-3"-N-methylarbekacin,
 6"-aminomethyl-5-epiarbekacin,
 3',4'-didehydro-5-epiarbekacin,
 5-deoxy-3',4'-didehydro-5-epifluoroarbekacin,
 5-deoxy-3',4'-didehydro-5-epiaminoarbekacin,
 1-N-[(S)-(3-amino-2-hydroxypropanoyl)]-3',4'-didehydro-5-epidibekacin,
 3',4'-didehydro-5,4"-diepiarbekacin,
 5-deoxy-3',4'-didehydro-4"-epi-5-epifluoroarbekacin,
 5-deoxy-3',4'-didehydro-4"-epi-5-epiaminoarbekacin,
 4"-deoxy-3',4'-didehydro-5-epiarbekacin, or
 6"-aminomethylarbekacin.

- [20] A pharmaceutical composition comprising a compound

according to any one of claims 1 to 19, or a pharmacologically acceptable salt or solvate thereof.

- [21] An antimicrobial agent comprising a compound according to any one of claims 1 to 19, or a pharmacologically acceptable salt or solvate thereof.
- [22] An anti-MRSA agent comprising a compound represented by general formula (Ia) or a pharmacologically acceptable salt or solvate thereof:

[Chemical formula 6]



wherein

R^{4a} and R^{4b}, which may be the same or different, represent a hydrogen atom or hydroxyl,

R^{5a} represents a halogen atom,

hydroxyl,

amino,

azide,

C₁₋₆ alkanoyloxy,

C₁₋₆ alkylsulfonyloxy,

C₁₋₆ alkanoylamino,

arylcarbonylamino,

di-C₁₋₆ alkylamino, or

C₁₋₆ alkylamino wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, phenyl, vinyl, amino, or hydroxymethyl,

R^{6a} represents C₁₋₆ alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, a halogen atom, or amino,

$R^{6'a}$ and $R^{6'b}$, which may be the same or different, represent a hydrogen atom or C_{1-6} alkyl,

$R^{3'a}$ represents a hydrogen atom or C_{1-6} alkyl,

the dashed line represents a single bond or a double bond,

m represents an integer of 0 to 2,

X represents a hydrogen atom or hydroxyl,

n represents an integer of 1 to 3, and

* represents an R or S configuration, provided that

$R^{5'a}$ represents a group as defined above other than a fluorine atom when $R^{4'a}$ represents a hydrogen atom, $R^{4'b}$ represents hydroxyl, and the dashed line represents a single bond.

- [23] An anti-MRSA agent comprising a compound according to any one of claims 10 to 13 or a pharmacologically acceptable salt or solvate thereof.
- [24] An anti-MRSA agent comprising a compound according to any one of claims 14 to 18 or a pharmacologically acceptable salt or solvate thereof.
- [25] Use of a compound according to any one of claims 1 to 19 or a pharmacologically acceptable salt or solvate thereof, for the manufacture of a pharmaceutical composition.
- [26] Use of a compound according to any one of claims 1 to 19 or a pharmacologically acceptable salt or solvate thereof, for the manufacture of an antimicrobial agent.
- [27] A method for treating or preventing an infectious disease, comprising the step of administering a compound according to any one of claims 1 to 19 or a pharmacologically acceptable salt or solvate thereof to an animal including a human.